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An Exhibition of Coupled Vibrations

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1917 Proc. Phys. Soc. London 30 255

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An Exhibition of Coupled Vibrations was given by Prof. E. H. BARTON, *F.R.S., and Miss* H. M. BROWNING.

THE apparatus shown consisted of a pair of pendulums, each of which was suspended from the mid point of a sagging string, the direction of which was transverse to the direction of oscillation of the pendulums. The two sagging strings were connected by a light wooden rod at the points from which the bobs were suspended. Each bob consisted of a metal funnel, from the apex of which a fine stream of sand fell during an experiment. A horizontal board could be moved slowly on rails just below the oscillating bobs, and the fine sand falling on this gave curves showing their motion. When one bob is set in oscillation the other being initially at rest, the latter, as is well known, starts to vibrate with gradually increasing amplitude until the first bob has been brought to a standstill, when the process is reversed. From an examination of the equations of motion it is found that the amount of sag in the transverse strings governs the degree of "coupling" of the oscillators, and by varying this and also the relative mass and periods of the pendulums, curves can be obtained illustrating all the phenomena of coupled electrical oscillations. By stopping one of the bobs when it has just been reduced to rest, thereby preventing the energy from being reabsorbed by it, the conditions of the quenched spark can be imitated.